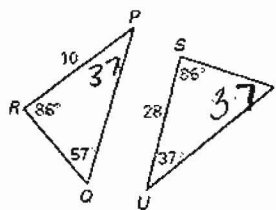


1. Is it possible to construct a triangle with the given side lengths? If so, determine if the triangle is right, acute, or obtuse.

11, 17, 29

NOT a Δ

2. Determine whether the two triangles are similar. If they are similar, write a similarity statement.



$\Delta RPQ \sim \Delta STU$

AA ~

3. Solve the proportion.

$$\frac{\sqrt{3}}{9} = \frac{x}{\sqrt{2}}$$

$$\frac{\sqrt{6}}{9} = \frac{9x}{9}$$

$$\frac{\sqrt{6}}{9}$$

4. Solve the proportion.

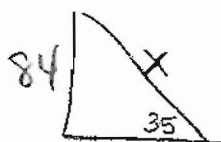
$$\frac{4-x}{5} = \frac{3x+5}{6}$$

$$24 - 6x = 15x + 25$$

$$-1 = 21x$$

$$x = -\frac{1}{21}$$

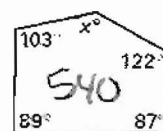
5. A mall escalator rises 84 feet at a 35° angle. Find the distance a person travels on the escalator stairs. Round your answer to two decimal places.



146.45 ft

$$\sin 35 = \frac{84}{x}$$

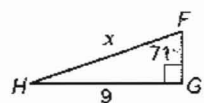
6. Find the value of x.



$$x + 401 = 540$$

$$x = 139$$

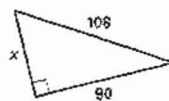
7. Find the value of
- x
- .



$$\sin 71 = \frac{9}{x}$$

$$x = 9.52$$

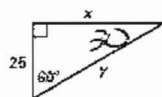
8. Find the unknown side length of the right triangle.



$$x^2 + 90^2 = 106^2$$

$$x = 56$$

9. Find
- x
- and
- y
- .



$$x = 25\sqrt{3}$$

$$y = 50$$

10. Is it possible to construct a triangle with the given side lengths? If so, determine if the triangle is right, acute, or obtuse.

15, 112, 113

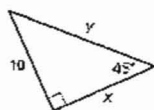
Yes

$$113^2 \text{ --- } 15^2 + 112^2$$

$$12769 \text{ --- } 12769$$

Right

11. Find
- x
- and
- y
- .



$$x = 10$$

$$y = 10\sqrt{2}$$

12. What are the measures of an interior angle and an exterior angle of a regular 30-gon?

$$e = \frac{360}{30} = 12$$

$$i = 168^\circ$$

13. Find the geometric mean of 12 and 24.

$$\frac{12}{x} = \frac{x}{24}$$

$$x^2 = \sqrt{12} \cdot \sqrt{24}$$

$$= 2\sqrt{3} \cdot 2\sqrt{6}$$

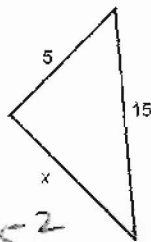
$$= 4\sqrt{18} = 12\sqrt{2}$$

14. Simplify the ratio

$$\frac{2 \text{ days}}{2 \text{ weeks}} = \frac{2}{14}$$

$$\left(\frac{1}{7} \right)$$

15. Find the value of x.

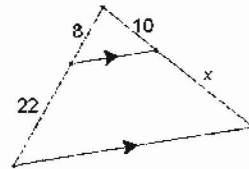


$$5^2 + x^2 = 15^2$$

$$x^2 = 200$$

$$x = 10\sqrt{2}$$

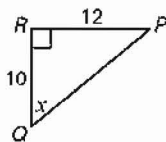
- 16.



$$\frac{8}{22} = \frac{10}{x}$$

$$x = 27.5$$

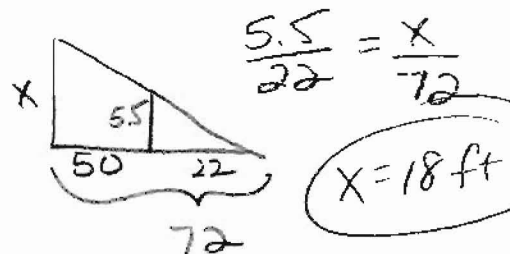
17. Find the value of x.



$$\tan x = \frac{12}{10}$$

$$x \approx 50.2^\circ$$

18. Megan, who is 5 feet 6 inches tall, is standing 50 feet from a tree. The tree's shadow is 72 feet long and ends at the tip of Megan's shadow. Find the height of the tree.



$$\frac{5.5}{22} = \frac{x}{72}$$

$$x = 18 \text{ ft}$$

19.

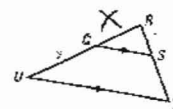
$$3\sqrt{7} - 2\sqrt{28}$$

$$3\sqrt{7} - 4\sqrt{7}$$

$$-\sqrt{7}$$

20.

Find RQ.



$$\frac{x}{9} = \frac{4}{6}$$

$$x = 6$$

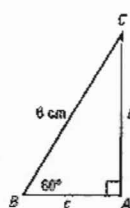
21.

Find the values of b and c.

$$S.L = 3$$

$$L.L = 3\sqrt{3}$$

$$\text{hyp} = 6$$



$$b = 3\sqrt{3}$$

$$c = 3$$